USE OF TOBACCO
AMONG
NORTH AMERICAN INDIANS

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PAWNEE PRIESTS MAKING A SMOKE OFFERING.

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Use of Tobacco among North American Indians

Tobacco has been one of the most important gifts from the New World to the Old. In spite of the attempts of various authors to prove its Old World origin there can be no doubt that it was introduced into both Europe and Africa from America. Most species of *Nicotiana* are native to the New World, and there are only a few species which are undoubtedly extra-American. The custom of smoking is also characteristic of America. It was thoroughly established throughout eastern North and South America at the time of the discovery; and the early explorers, from Columbus on, speak of it as a strange and novel practice which they often find it hard to describe. It played an important part in many religious ceremonies, and the beliefs and observances connected with it are in themselves proof of its antiquity. Hundreds of pipes have been found in the pre-Columbian mounds and village sites of the eastern United States and, although these remains cannot be dated, some of them must be of considerable age. In the southwestern United States the Basket Makers, an ancient people whose remains are found below those of the prehistoric Cliff Dwellers, were smoking pipes at a time which could not have been much later than the beginning of our era.

At the time of the discovery of America, tobacco was in use over the greater part of the continent. It

was not used in the sub-Arctic regions of North America or in the extreme southern part of Southern America. On the west coast of South America and in the Andean highlands it was replaced by another narcotic, coca (*Erythroxylum coca*), from which the modern drug cocaine is extracted. The coca leaves were dried and chewed with powdered lime. Tobacco was smoked throughout most of its range, but the tribes of the northwest coast of North America mixed it with shell lime and made it into small pellets which were allowed to dissolve in the mouth. The tribes of Washington, Oregon and a great part of California used it in the same way, but also smoked it. Along the eastern side of the Andean highlands in South America tobacco was both smoked and chewed. The chewing tobacco was prepared like the Andean coca, and the idea was probably borrowed from coca chewing.

Although Europeans learned the custom of smoking from the Indians and even copied the Indian smoking appliances rather closely, the modern American custom of tobacco chewing may not be of Indian origin. None of the North American Indians east of the Rocky Mountains chewed tobacco, and the only point at which South American tobacco chewing reached the Atlantic Coast was a small region in northern Colombia. Modern chewing tobacco lacks the admixture of powdered lime, which was considered necessary by all Indian tobacco chewers and seems to have been an invention of the white frontiersmen. It is possible, however, that the idea of tobacco chewing was carried to the English colonies by the Spaniards, who may have learned it from the South American Indians.

The North American Indians used at least nine species of *Nicotiana,* most of which were cultivated. *Nicotiana tabacum,* the species to which practically all the modern commercial tobaccos belong, was grown

AMERICAN INDIAN TOBACCO PIPES.

1. BOWL OF BASKETMAKER PIPE. 2. BOWLS OF SOUTHWESTERN TUBULAR PIPES. 3. SOUTHWESTERN TUBULAR PIPE, SANDSTONE. 4. CALIFORNIA CLAY PIPE. 5. CALIFORNIA STEATITE PIPE. 6. PIPE WITH STEATITE BOWL AND WOODEN STEM, AND PIPE CASE, CALIFORNIA.

throughout Mexico, the West Indies, and in northern and eastern South America. It was unknown north of Mexico until its introduction into Virginia by the English colonists. *Nicotiana rustica*, a much hardier species with a yellow flower, was grown by the Indians of the eastern United States and Canada as far west as the great plains and as far north as agriculture was possible. It was the first tobacco grown in Virginia for the European trade, but was soon supplanted there by *N. tabacum*. Small patches of it are still cultivated by some of the Central Algonquian tribes who use it in their ceremonies. *N. attenuata* was used over a larger area than any other species. It is found in its natural state in the southwestern United States and southern plains, and as a cultivated plant extends northward into western Canada and British Columbia. It was also cultivated on the lower Colorado, but the typical Pueblo tribes do not seem to have raised it. *N. multivalvis* was grown in Washington and Oregon, as well as by the Crow, who lived on the western edge of the plains. A related species (*N. quadrivalvis*) was grown by the settled tribes along the Missouri river. Still another species (*N. biglovii*) was used by the California tribes, and is known to have been cultivated by the Hupa. The three last-named species are rather closely related; it seems probable that *N. multivalvis* and *N. quadrivalvis* were brought into the plains area from the west, displacing *N. attenuata*.

There is very little information available on the aboriginal methods of tobacco culture in the eastern United States. Early writers say that it was not grown with other crops, as it was believed to be injurious to them, and was usually cultivated by men. Mr. Milford Chandler informs me that the Cayuga, in New York State, had permanent tobacco beds in which the plant was grown year after year. These beds were lightly manured from time to time, but were not

cultivated, and the plants were left to propagate themselves. The leaves were gathered, but the stems, with the seed pods, were left standing in the patch. The Seneca, another tribe of the Iroquois confederacy, simply scattered the seeds on the ground and had a religious prohibition against cultivating the plant. Mr. Alanson Skinner informs me that the Kickapoo and Potawatomi made large brush piles fifty or more feet long and ten or twelve feet wide which they fired about the middle of June. When the ashes were cold, the ground was hoed up, mixed with the ashes, and planted with tobacco and pumpkins. The tobacco gardens were made in the woods, remote from the villages, and were surrounded by brush fences. The Sauk also planted their tobacco in the ashes of brush-fires, but did not break the ground or cultivate the crop. In some cases they simply threw a handful of seeds on the ground near the lodge. The Kickapoo, Potawatomi and Sauk all gathered the leaves of the plant in late August. They spread them on hides or blankets, and when they had wilted, rolled them like tea-leaves. When dry, the leaves were crushed. The reason assigned for the rolling was that leaves treated in this way did not crush to fine powder like those that had been dried flat. Most of the eastern tribes grew only enough tobacco for their own needs, but one, the Tionontati, raised large quantities of it for export and, on this account, were called Tobacco People (Nation de Petun) by the French.

The best published account of aboriginal tobacco-culture is that given to G. L. Wilson by Buffalobird-woman, an old member of the Hidatsa tribe. The Hidatsa raised a different species of tobacco from the eastern Indians (*N. quadrivalvis*), and their methods were somewhat different. She says, "The old men of the tribe who smoked each had a tobacco garden planted not very far away from our corn-fields, but

never in the same plot with one. Tobacco gardens were planted apart, because the tobacco plants have a strong smell which affects the corn; if tobacco is planted near the corn, the growing corn-stalks turn yellow, and the corn is not so good. Tobacco seed was planted at the same time sunflower seed was planted (as early in April as the soil could be worked). The owner took a hoe and made soft every foot of the tobacco garden; and with a rake he made the loosened soil level and smooth. He marked the ground with a stick into rows about eighteen inches apart, and sowed the seed very thickly in the row. He covered the newly sowed soil very lightly with earth which he raked with his hand. When rain came and warmth, the seed sprouted. The plants came up thickly so that they had to be thinned out. The owner of the garden would weed out the weak plants, leaving only the stronger standing. The earth about each plant was hilled up with a buffalo rib into a little hill like a corn hill. A very old man, I remember, used a big buffalo rib, sharpened on the edge, to work the soil and cultivate his tobacco. He caught the rib by both ends with the edge downward; and stooping over, he scraped the soil toward him, now and then raising the rib up and loosening the earth with the point at one end. He knelt as he worked.

"Tobacco plants began to blossom about the middle of June; and picking then began. Tobacco was gathered in two harvests. The first harvest was these blossoms, which we reckoned the best part of the plant for smoking. Blossoms were picked regularly every fourth day. If we neglected to pick them until the fifth day, the blossoms would begin to seed. Only the green part of the blossom was kept. When we fetched the blossoms home to the lodge, my father would spread a dry hide on the floor in front of his sacred objects and spread the blossoms on the hide to dry.

The smoke hole of the lodge, being rather large, would let through quite a strong sunbeam, and the drying blossoms were kept directly in the beam.

"When the blossoms had quite dried, my father fetched them over near the fireplace and took a piece of buffalo fat, thrust it on the end of a stick and roasted it slowly over the coals. He touched it lightly here and there to the piled up blossoms, so as to oil them slightly, but not too much. Now and then he would gently stir the pile of blossoms with a little stick, so that the whole mass might be oiled equally. When my father wanted to smoke these dried blossoms, he chopped them fine with a knife, a pipeful at a time. The blossoms were always dried in the lodge: If dried without, the sun and air took away their strength.

"About harvest time, just before frost came, the rest of the plants were gathered. He dried the plants in the lodge. For this he took sticks, about fifteen inches long, and thrust them over the beam between two of the exterior supporting posts, so that the sticks pointed a little upwards. On each of these sticks he hung two or three tobacco plants by thrusting the plants, root up, upon the stick, but without tying them. When the tobacco plants were quite dry, the leaves readily fell off. It was the stems that furnished most of the smoking. They were treated like the blossoms, with buffalo fat. We did not treat tobacco with buffalo fat except as needed for use, and to be put into the tobacco pouch ready for smoking.

"Before putting the tobacco away in the cache pit, my father was careful to put aside seed for the next year's planting. He gathered the black seeds into a small bundle about as big as a baby's fist, wrapping them in a piece of soft skin which he tied with a string. He made two or three of these bundles and tied them to the top of his bed, or to a post nearby, where there was no danger of their being disturbed."

AMERICAN INDIAN TOBACCO PIPES.

1. PIPE OF ANTELOPE BONE, CHEYENNE. 2-3. STEATITE PIPES, JOHNSON COUNTY, ILLINOIS. 4-5. LARGE STEATITE PIPES, SOUTHEASTERN UNITED STATES.

The Blackfoot and Crow, nomadic tribes of the western Plains who raised no food crops, cultivated small patches of tobacco for ceremonial use. The ground was cleared of weeds and grass, and the seed planted in holes about two inches deep, made with a pointed stick. The gardens were weeded from time to time, but do not seem to have been regularly cultivated. In both tribes tobacco culture was attended by elaborate ceremonies. Among the Crow it was in the hands of a society which also played an important part in the social life of the tribe. The right to plant tobacco was considered a special privilege which could be obtained only through a revelation from some supernatural being or through adoption by a person who had received such a revelation. The adopted person could, in turn, adopt others. Any person might receive such a revelation, and the society was composed of a number of divisions or chapters which derived their right to plant from different revelations and differed in their songs and in details of their ceremonies. Within the chapter there were certain rights, such as that of mixing seed before planting, which could only be acquired by purchase. Both men and women were eligible to membership, and the society held assemblages for dancing throughout the year.

Some of the tribes west of the Rocky Mountains also cultivated tobacco, although there is little information on their methods. On the Columbia River and in northern California a stump or fallen log was burned, and the tobacco seed scattered in the ashes.

Most of the North American Indians mixed their tobacco with other herbs before smoking it. Among the more northern tribes, especially those who did not raise tobacco themselves, this was done partly through motives of economy, but the mixture was also designed to improve the flavor, as in our own commercial

blends. The favorite smoke of the tribes of the eastern United States and Canada was called kinnikinnick, from an Algonquian word meaning "that which is mixed." Each tribe had its own formula for this mixture, but it usually consisted of tobacco, sumac leaves, and the inner bark of a species of dogwood. The bark and leaves of a number of other plants were sometimes added or substituted. A little oil was usually added to the mixture to bind the dust, which would otherwise irritate the smoker's throat and clog the pipe. Kinnikinnick was milder than pure tobacco, and was preferred by most Indians and by many white hunters and settlers. The Pueblo Indians of the Southwest smoked various mixtures of tobacco and herbs in their religious ceremonies. The greatest care was used in compounding these ceremonial mixtures, and the plants were valued largely according to the distance from which they came. The California Indians diluted their tobacco with manzanita leaves or mixed it with Jamestown weed, itself a powerful narcotic. The choicest smoking mixture of the ancient Mexicans was made from tobacco and the gum of the liquidambar tree.

Three main methods of smoking were used by the American aborigines. The natives of northern and central South America and the West Indies were cigar smokers. The Central Americans and Mexicans were predominantly cigarette smokers, although some of the ancient Mexicans also used pipes. The North American Indians, with the exception of the Pueblo tribes of the Southwest, were exclusively pipe-smokers. The distribution of these three methods in America has strongly influenced European smoking customs. The Mediterranean nations, who learned the use of tobacco from cigar and cigarette using Indians, still prefer to smoke it in these forms. The English, who came in

contact with the pipe-smoking Indians of the eastern United States are still predominantly pipe-smokers. The custom of cigarette-smoking did not become general in northern Europe and the United States until quite recent times, and the vigorous opposition which it has met here seems to be due quite as much to its novelty as to any proved injurious effects.

Aboriginal cigars were practically identical with those now in use and were smoked in the same way.

The aboriginal cigarette was made with a corn-husk wrapper and contained much less tobacco than the modern commercial variety. It is still in use throughout most of Mexico and Central America and among the Pueblo Indians of the southwestern United States. Archæological finds prove that the southwestern tribes smoked pipes or reed cigarettes in ancient times, and the corn-husk cigarette may have been introduced from Mexico during the early historic period. In recent times the spread of the Peyote cult, which originated in the southwestern Plains, has carried the corn-husk cigarette to many northern tribes who were unfamiliar with it even a generation ago. The Mexicans and Pueblo Indians also smoked reed cigarettes in ancient times, and the Hopi form may be taken as typical. It consisted of a small reed, not over two and a half inches long, packed with powdered tobacco. A band of some fabric was usually bound around the reed, leaving a flap hanging down by which it was held. Hundreds of the charred butts of such cigarettes have been found in the prehistoric ruins of the Southwest, but they are lacking in the lower archaeological levels, and the earliest inhabitants of the region were probably pipe and not cigarette smokers.

The Dakota say that they did not use pipes in ancient times, but smoked their tobacco in a hole in the ground. A similar method was used by the Cree

as a makeshift. Hind says, "I asked the Indian what he would do for a smoke until he had finished the new pipe. He arose and walking to the edge of the swamp cut four reeds, and joined some pieces together. After he had made a hole through the joints, he gently pushed one extremity in a slanting direction into the earth, which he had previously made firm by pressure with his foot. He then cut out a small hole in the clay, above the extremity of the reed, and molding it with his fingers, laughingly said: 'Now give me tobacco, and I will show you how to smoke it.' He then filled the hole with a mixture of tobacco and bearberry, placed a live coal on the top, and stretching himself at full length on the ground, with his chin supported by both hands, he took the reed between his lips and enjoyed a long smoke."

Indian pipes were of two main types,—straight pipes, in which the tobacco cavity and stem were in the same plane, as in a modern cigar holder, and elbow pipes, in which the bowl was inclined upward. The straight pipe was known throughout practically the whole of America north of Mexico, but was rare in the eastern United States. It was used to the practical exclusion of all other forms in the southwestern United States and on the Pacific coast. The elaborately decorated smoking tubes of the Mexicans, mentioned by early Spanish writers, may have been straight pipes, but many of them were probably cane cigarettes. The elbow pipe was the dominant form in the eastern United States and Great Plains, and also in eastern and southern South America. It was used to a limited extent by the prehistoric Mexicans and in southern California, and was not unknown in the Southwest. In historic times it has come into use in British Columbia and Alaska, regions in which tobacco was not originally smoked.

The earliest pipes which can be even approximately dated are those of the Basket Makers, a people who lived in the southwestern United States in ancient times. Their remains are found below those of the Cliff Dwellers, and evidence along several lines indicates that they were living in the region by the beginning of the Christian era and had been absorbed or driven out by A.D. 1000. A number of their pipes have been found. They are of the straight type and are usually quite small, short, and heavy, with separate stems about two inches long (Pl. II, No. 1). The bowls are made of stone, unbaked clay, or, rarely, wood; and the stems of wood or bird-bone. The stems are attached with pitch. Many of these pipes are heavily caked, and they were probably used for personal as well as ceremonial smoking. It is impossible to tell whether the Basket Makers used tobacco in these pipes and analyses of the cake have yielded only negative results. If they did use tobacco, it was probably the wild native species (*Nicotiana attenuata*).

The Cliff Dwellers and ancient Pueblo tribes who succeeded the Basket Makers used straight pipes of a somewhat different type. They were usually longer and more slender than the Basket Maker pipes with somewhat thinner walls. The smaller examples, which were probably intended for personal use, seem to have had separate stems (Plate II, No. 2). Large tubular pipes, shaped like half a cigar, are also found, but were probably used only in ceremonial smoking. They are made of clay or soft stone and often show beautiful workmanship (Pl. II, No. 3). Roughly made clay pipes of this sort, popularly known as "cloud blowers," are still used by the Hopi in their ceremonies.

The California Indians, with the exception of the Diegueño, also used the straight pipe, and the form

is probably as ancient there as in the Southwest. There were various tribal and regional differences in the shape and material. Wooden pipes without separate stems were of nearly universal occurrence, and were probably the earliest form. In some regions they were carved and inlaid with abalone shell. Pipes of unbaked clay with wooden stems were used in a few localities (P. II, No. 4), but the finest California pipes were made of steatite or soapstone (Pl. II, No. 5). They were usually provided with short mouthpieces of wood or bone. The Hupa of northern California used a pipe with a small steatite bowl accurately fitted into a cavity in the end of a long tapering wooden stem (Pl. II, No. 6).

Several of the tribes of the Great Plains used straight pipes in ancient times. These pipes were made from the leg bone of an antelope wrapped with sinew at the bowl end (Pl. III, No. 1). In some cases the whole pipe was covered with rawhide or membrane. The Arapaho say that they used this form exclusively in early times, and the sacred pipe of the tribe is straight with a black stone bowl and a long tubular wooden stem. A pipe of the same form, but with a red stone bowl, was used by the Cheyenne in their Sun Dance, and the Crow have made straight stone pipe bowls until quite recent times (Pl. V, No. 3).

A number of straight pipes of stone and clay have been found in the eastern United States, but there seems to be no record of their use by the historic tribes. The examples shown (Pl. III, Nos. 2-3) are from Johnson County, Illinois. They are made from close-grained greenish brown steatite, a material soft enough to be easily worked with flint tools, but capable of taking a fine polish. The large size and excellent finish of these pipes indicates that they were intended for ceremonial rather than personal use. The bird pipe is eight and a quarter inches long, with an

internal bowl diameter of one and a quarter inches, and is an unusually good example of aboriginal sculpture. The eye sockets are roughly finished, and were probably inlaid with some other material.

Straight pipes are easier to make than elbow pipes, but have certain disadvantages. They have to be directed upward in smoking to keep the tobacco from falling out of the bowl, and the tobacco dust and juices are drawn down into the stem with results familiar to all smokers. To prevent this, many tribes are said to have put a pebble or pellet of clay in the bottom of the bowl before filling it. Even a slight angle between the bowl and stem is a great convenience to the smoker, and this improvement once hit upon, perhaps through faulty workmanship, the development of the elbow pipe was easy. Pipes from different parts of North America show all degrees of bowl inclination from the straight tube to a right angle, and there can be little doubt that the main evolution of the elbow pipe was along this line. In the Mississippi Valley and Great Plains there are, however, certain types of elbow pipe which could hardly have been developed in this way. In these the bowl rests upon a base which extends out for some distance in front of it. From various archæological finds it seems probable that these types were developed from pipes which had a corn-cob bowl pierced through the base with a reed stem.

North American elbow pipes have never been satisfactorily classified, but about twenty types are distinguishable. Only the more important of these can be mentioned here. Most of the types show a more or less continuous geographical distribution, but there was no tribe or region in which all the pipes were of the same type. The Chippewa distinguished four types of pipe which were in simultaneous use among them. These were—(1) Women's pipes, which were

small, with short stems and little decoration. (2) Men's pipes for ordinary smoking, which were somewhat larger and better made than the women's pipes, but were also small. (3) Personal pipes of famous warriors, which were larger than the ordinary pipes, with heavy decorated stems sometimes as much as five feet long. (4) Chief's pipes and ceremonial pipes, which were large, with long stems like the warrior's pipes, and were elaborately decorated. Even the pipes for ordinary smoking were highly valued and would often be carved and decorated in the owner's spare time. Stone for pipe-making, and even finished pipes, seem to have been bartered from tribe to tribe in ancient times.

The Indians made their pipes from many materials. Most of the prehistoric pipes are of stone or clay, but early records prove that wood, horn, and bone were also used by the tribes of the Atlantic Coast at the time of their first contact with Europeans. Almost all the pipes made of these perishable materials have been destroyed, but they were probably of the same types as the stone and clay pipes from this region. Clay pipes were in at least occasional use throughout the whole of North America east of the Great Plains, but the finest examples are found in the old Iroquois territory in New York State and Canada, and in the southeastern United States. Stone pipes are found from the Atlantic coast to the Rocky Mountains and seem to have been preferred by all those tribes among whom pottery making was poorly developed.

Large numbers of Iroquoian clay pipes have been found in old cemeteries and village sites, and their form makes them easily distinguishable in collections. They are made of fine hard-burned clay and have a graceful trumpet shape, with rather long slender bowls and short stems (Pl. IV, No. 3). The upper part of the bowl is often encircled by a band of incised

AMERICAN INDIAN TOBACCO PIPES.

1. MONITOR PIPE, HOPEWELL MOUNDS, OHIO. 2. BIRD AND FISH PIPE, HOPEWELL MOUNDS, OHIO. 3. IROQUOIS CLAY PIPE. 4. CATAWBA CLAY PIPES (MODERN). 5. MEXICAN CLAY PIPES (TOLTEC?).

designs or modeled into a human face or bird's head. They were not provided with separate stems.

Archæological finds on the Atlantic coast prove that the Indians of that region also used small clay pipes, although the early visitors only mention large pipes with excessively long stems. It seems probable that the larger forms were semi-ceremonial, like the warrior's and chief's pipes of the Chippewa, while the small pipes were used for individual smoking. Many of these small pipes resemble rather closely the early European trade pipes, and modern clay pipes and straight briers, but the type is unquestionably pre-European. It was probably the prototype from which modern European pipes were developed. Some of the ancient pipes were made in one piece, while others were evidently provided with separate stems, probably reeds. Identical forms were made in stone in this region.

In the southeastern United States short clay pipes with reed or wooden stems seem to have been in common use. They were often rather elaborately decorated. with modeled figures of birds, clay pellets, or incised designs. This form of pipe is still in use among the Catawba, although many of their pipes show the influence of European models (Pl. IV, No. 4).

Pottery pipes with flaring bowls and slender stems, sometimes as much as eighteen inches long, are found in prehistoric Caddoan sites in Arkansas. The stems are excessively fragile, and as these pipes are usually found in the corners of graves, it seems probable that they were made for mortuary use rather than actual smoking. They are clearly imitations of a type which had a corn-cob bowl impaled on a reed stem.

Stone pipes occur over a wider territory than pottery pipes and show a greater diversity of form. There are some regions in which the same shapes occur in both stone and pottery, but there are several

types of pipe which appear never to have been made of clay. Most of the stones used in pipe-making were quite soft, but a few pipes of quartzite and other hard rocks have been found. The material was carefully selected, and was usually obtained from regular quarries. In the eastern United States steatite, serpentine and slate were the stones most used. In the upper Mississippi valley and Great Plains the favorite material was catlinite, a fine-grained claystone soft enough to be easily worked with stone tools, but firm enough to take a high polish. Deposits of this material have been found in several states, and a local variety was used by the Ohio Mound Builders. The most famous catlinite quarries are in southeastern Minnesota and yield the highly prized red stone from which so many Plains Indian pipes are made. Here the catlinite occurs as a narrow layer, nowhere more than twenty inches thick, between strata of compact quartzite five to eight feet thick. To reach the catlinite it was necessary to break away the quartzite with stone mauls or shatter it by building large fires upon it and then dashing water on the heated stone. The old Indian workings extend for more than a mile along the face of the deposit, and the quarry must have been in use for several centuries. According to Indian traditions, the place was visited by many different tribes, who considered it common property and abstained from hostilities there. In historic times the Dakota considered it exclusively their property, and part of it was set aside for their use when they ceded their other lands in the vicinity. They still visit it occasionally to obtain stone for their pipes. White men have also worked the quarry, and in 1865 and 1866 over two thousand pipes of this material were made by the Northwestern Fur Company for their trade with the Indians.

The finest aboriginal pipes are unquestionably the so-called monitor pipes found in the Ohio mounds. Many of these show such excellence of design and execution that early investigators doubted whether they could be the work of American Indians. They are made of soft stone or of fire clay, which was carved like stone, but never of pottery. The type is characterized by a long, broad, and very thin base from the center of which the bowl rises vertically. The base may be either flat or convex. The bowl is often made in the form of an animal or bird, and some of these effigies show artistic ability of a high order. Even when the style is impressionistic, the species is usually unmistakable. The significance of these carvings can only be conjectured, but so many species are shown that it seems probable that they represent the personal guardians of the pipes' owners. None of the historic tribes used pipes of this type, and the finest examples are unquestionably pre-Columbian. One of the pipes illustrated (Pl. IV, No. 1) is of typical monitor form, but has the bowl incised with designs representing bird's heads. In the other (Pl. IV, No. 2) the shape has been modified to suit the subject, a roseate spoonbill resting on the back of some large water animal, probably a mud puppy (*Necturus maculosus*).

A number of large stone pipes have been found in the southeastern United States (Pl. III, Nos. 4-5). Some of these pipes weigh several pounds and, as they are everywhere associated with smaller forms of stone or clay, they were probably made for ceremonial use. They seem to have been provided with long, thick wooden stems. These heavy pipes are of several types, and are usually well made, but are inferior to the monitor pipes in design and execution. In Georgia, Alabama, and the lower Mississippi valley there is a very massive short type in which the bowl and stem

holes are conical and of nearly equal size and depth. These biconical pipes are often made in the form of human effigies or of highly conventionalized animals or birds.

Early visitors to the north Atlantic Coast say that the Indians of that region used heavy carved pipes with stems three to six feet long. Large stone pipes are hardly ever found in this region, and even small carved pipes are extremely rare. It seems probable that these early forms either had quite small, plain bowls with heavy carved stems, or were made of wood or other perishable material. Holm says that the Pennsylvania Indians made their pipe bowls of horn, and several of the Algonquian tribes have made a considerable use of carved wooden pipes in historic times. Among many tribes the stems of ceremonial pipes were elaborately decorated, and were considered more important than the bowls.

Plains Indian pipes are commoner in collections than those from any other region. The Blackfoot preferred pipes of black stone, with acorn-shaped bowls reminiscent of those in use among the Micmac and other northeastern Algonquian tribes (Pl.V,No. 4), but throughout most of the Plains the favorite pipe was made of Minnesota catlinite, and was of Sioux type (Pl. V, Nos. 6-8). This type is common in museums and private collections. It has a tubular bowl set vertically on a long base which projects beyond the bowl as a pointed spur. This projecting base is also found in the monitor pipes, and the two types may be remotely related. Pipes of the Sioux type have been made in great numbers by both whites and Indians, and many of those in collections were probably manufactured by whites. Either early white traders, or the tribes on the eastern edge of the Plains originated the practice of inlaying the bowls and bases with lead. The pipe was cut to nearly its final

AMERICAN INDIAN TOBACCO PIPES.

1-2. PAWNEE SACRED PIPES. 3. CHEYENNE SUN-DANCE PIPE. 4. BLACKFOOT PIPE. 5-7. CHEYENNE PIPES. 6-8. SIOUX PIPES. 9. PIPE TAMPER, SIOUX. 10. PIPE BAG, SIOUX.

form, and a clay mold made. Deep grooves were then cut in the stone to receive the lead, and the pipe was returned to the mold, and the metal poured. The metal and stone were then rubbed down to a smooth surface. Valuable pipes which had been broken were sometimes repaired in this way.

All Plains Indian pipes, with the exception of the straight bone pipes previously noted, were provided with long, heavy, wooden stems. Some tribes preferred tubular, others flat stems. In ancient times most of the long pipe stems were probably split lengthwise, the smoke passage excavated, and the two halves glued together. Some of the northern and western tribes used a solid tubular stem which they pierced by an ingenious method. They selected a young ash shoot which had a small pith cavity in the center and caught a wood-boring grub. They made a hole in one end of the shoot and inserted the grub, closing the opening behind it. The shoot was then hung over a fire, and the grub, following the pith as the line of least resistance, drilled a hole through the shaft from end to end. When it emerged, it was captured and returned to the place where it had been found with appropriate thanks. Split tubular stems are rather unsatisfactory, as the halves are liable to warp and separate. The broad, flat pipe-stem was probably invented to give a wider surface for the glue and hence a firmer joint. It reached its highest development among the Dakota, and they seem to have been the inventors of the "puzzle stem," a broad, flat stem pierced with designs so that the smoke passage had to make several turns between the pipe-bowl and mouth-piece. Pipe stems were often decorated with elaborate wrappings which helped to hold the halves together.

A peculiar form of pipe, which may be a variant of the Sioux type, is found in a limited area in the upper Mississippi valley. These pipes usually have bases with long projecting spurs, but the bowl is smaller than the stem hole and very low. It is surrounded by a broad, thin disk sometimes as much as three and a half inches across. Some of these "disk pipes" suggest the shallow-bowled pipes of the Asiatics, but the form is certainly prehistoric. Pipes of this type are rare, and were probably made for ceremonial use. One of the sacred pipes of the Omaha is of this sort.

Although all the Mexican Indians were predominantly cigarette-smokers, ancient clay pipes of elbow type have been found in the valley of Mexico (Pl. IV, No. 5). They are not mentioned by any of the early Spanish writers, but the specimens found are unquestionably of native workmanship, and are probably prehistoric. The commonest form has a bulb-shaped bowl and a rather thick stem flattened on the bottom, so that the pipe will stand upright. The occurrence of elbow pipes in a limited area, far from any other in which they were known, is difficult to account for. Some of these pipes resemble forms in use in the southeastern United States and lower Mississippi valley.

Elbow pipes were also used on the Northwest Coast and in Alaska, but they were introduced into these regions after the discovery of America. The Alaskan Eskimo apparently learned the practice of smoking from the natives of Siberia, and their pipes are of Asiatic type, with very small bowls (Pl. VI, No. 1). Their best pipes are made from walrus tusks, and are often elaborately etched. The tusk is usually split lengthwise and the halves joined in such a way that they can be taken apart to obtain the juice distilled in smoking. The juice was mixed with fungus

ashes for chewing or with the smoking tobacco. Poorly made pipes of Eskimo form were used by the Athapascan tribes of interior Alaska, who were taught to smoke by the Eskimo.

The Indians of the Northwest Coast chewed tobacco in ancient times, but did not smoke it. The more northern tribes may have adopted smoking from Asia by way of the Eskimo, but their pipes show little resemblance to the Asiatic forms, and they probably learned the practice from white visitors. The natives of this region are expert carvers, and nearly all their pipes are decorated with figures of men or totemic animals. Wood is the favorite material (Pl. VI, No. 2), but bone and antler are also used and some of the tribes make very elaborate pipes of black slate (Pl. VI, No. 3). The slate pipes are much sought after by collectors, and many of them seem to have been made for sale rather than use.

Pipes are mentioned among the goods given to the Indians in some of the earliest English land-purchases, and they were regularly carried by the white traders with the Indians. An English pipe-maker, Robert Cotton, came to Virginia in 1608. The earliest trade pipes were made of clay and seem to have been patterned after the small pipes used for personal smoking by the coast tribes. Those made in the various European countries showed minor differences, but were all of nearly the same form. The later trade pipes show an increasing diversity in shape and decoration, but the whites apparently did not attempt to make the larger ceremonial forms. The most important contribution on the part of the whites to the Indian tobacco complex was the tomahawk pipe. This implement had a pipe-bowl above and a blade below, and could be used either as a pipe or as a weapon. We do not know when or where it originated, but it

apparently did not come into general use in the English Colonies before 1750. All the European nations equipped their Indian allies with tomahawk pipes, and a number of types are recognized by collectors. The pipe-bowl was nearly always of acorn shape, like the pipe used by the northeastern Algonquians, but the blade varied considerably. In general, the English and early American tomahawks had straight-edged hatchet-blades, and the French ones had diamond-shaped blades, like spear-heads. Spanish tomahawks had flaring blades with curved edges, like mediæval battle-axes. There were a number of white tomahawk-makers whose work differed in minor details; and fine inlaid, chased, or inscribed tomahawks were sometimes made for presentation to important chiefs.

An Indian warrior was rarely without his pipe and tobacco, and special tobacco-bags were used by all the tribes east of the Rocky Mountains. In early times, these bags were usually made from the skins of small animals taken off whole. The Eastern Woodland tribes used a rather small bag which was tied to the belt. The Plains tribes used a larger bag, often made from a fawn skin, in which they carried both the pipe and tobacco. In historic times the northern Plains Indians have used long, flat rectangular bags decorated with beads or porcupine quills, but this type apparently is not an ancient one (Pl. V, No. 10). Several of the Plains tribes also had special boards on which the tobacco was cut up and elaborate pipe tampers (Pl. V, No. 9). These accessories were used mainly in ceremonial smoking. In Pawnee ceremonies the pipe was always tamped with an arrow captured from the enemy. It was forbidden to pack it with the fingers, as the gods might think that the man who did so offered himself with the tobacco and take his life. The tribes of the Northwest Coast crushed their tobacco

in mortars. These were usually made from whale vertebrae, and were often elaborately carved.

Even if documentary evidence of the New World origin of tobacco were lacking, its importance in the religious and ceremonial life of the Indians would leave little doubt of the antiquity of its use among them. Among all the tribes east of the Rocky Mountains tobacco was the favorite offering to the supernatural powers, and among the Central Algonquians no ceremony could take place without it. As a sacrifice it might be burned as incense, cast into the air or on the ground, or buried. There were sacred places at which every visitor left a tobacco offering, and during storms it was thrown into lakes and rivers to appease the under-water powers. Smoking was indulged in on all solemn occasions, such as councils, and was a necessary part of most religious ceremonies. In such ceremonial smoking the methods of picking up, filling, and lighting the pipe were usually rigidly prescribed, and the first smoke was offered to the spirits. The methods of passing and holding the pipe were also prescribed and differed with the ceremony and even with the personal taboos of the smokers. In the religious ceremonies of the Hopi, the head chief was attended by an assistant of nearly equal rank, who ceremonially lighted the pipe, and with certain formalities and set words handed it to the chief, who blew the smoke to the world quarters and over the altar as a preliminary to his invocation.

The so-called medicine-bundles, collections of sacred objects around which the religious life of many of the Central Algonquians and Plains Tribes centered, often contained pipes which were smoked in the ceremonies attending the opening of the bundle (Pl. V, Nos. 1-2). In some cases the pipe itself seems to have been the most important object, and the palladium of the Arapaho tribe is a straight pipe of black stone.

Among some of the eastern Siouan tribes each clan had its sacred pipe which was used at namings and other clan ceremonies. The stems of these pipes were covered with elaborate wrappings and other ornaments which symbolized the various supernatural powers invoked in the ceremonies, and the sanctity of the pipe lay in its stem rather than its bowl.

The calumet, so often mentioned in early American records, was not a pipe, but an elaborately decorated shaft, pierced like a pipe stem, to which a pipe bowl was not necessarily attached. The name itself is not of Indian origin, but is a Norman-French word meaning a reed or tube. J. N. B. Hewitt says, "From the meager descriptions of the calumet and its uses it would seem that it has a ceremonially symbolic history independent of that of the pipe; and that when the pipe became an altar, by its employment for burning sacrificial tobacco to the gods, convenience and convention united the already highly symbolic calumet shafts and the sacrificial tobacco altar, the pipe bowl; hence it became one of the most profoundly sacred objects known to the Indians of northern America. As the colors and other adornments of the shaft represent symbolically various dominant gods of the Indian pantheon, it follows that the symbolism of the calumet and pipe represented a veritable executive council of the gods. Moreover, in some of the elaborate ceremonies in which it was necessary to portray this symbolism the employment of two shafts became necessary, because the one with its colors and accessory adornments represented the procreative male power and his aid, and was denominated the male, the fatherhood of nature; and the other with its colors and necessary adornments represented the reproductive female power and her aid, and was denominated the female, the motherhood of nature.

"The calumet was employed by ambassadors and travelers as a passport; it was used in ceremonies designed to conciliate foreign and hostile nations and to conclude lasting peace; to ratify the alliance of friendly tribes; to secure favorable weather for journeys; to bring needed rain; and to attest contracts and treaties which could not be violated without incurring the wrath of the gods. The use of the calumet was inculcated by religious precept and example. A chant and a dance have become known as the chant and dance of the calumet; together they were employed as an invocation to one or more of the gods. By naming in the chant the souls of those against whom war must be waged, such persons were doomed to die at the hands of the person so naming them. The dance and chant were rather in honor of the calumet than with the calumet.

"The Omaha and cognate names for this dance and chant signify 'to make a sacred kinship,' but not 'to dance.' This is a key to the esoteric significance of the use of the calumet. The one for whom the dance for the calumet was performed became thereby the adopted son of the performer. One might ask another to dance the Calumet dance for him, or one might offer to perform this dance for another, but in either case the offer or invitation could be declined.

"Charlevoix (1721) says that if the calumet is offered and accepted it is the custom to smoke in the calumet, and the engagements contracted are held sacred and inviolable, in just so far as such human things are inviolable. The Indians profess that the violation of such an engagement never escapes just punishment. In the heat of battle, if an adversary offer the calumet to his opponent and he accept it, the weapons on both sides are at once laid down; but to accept or to refuse the offer of the calumet is optional.

There are calumets for various kinds of public engagements, and when such bargains are made an exchange of calumets is usual, in this manner rendering the contract or bargain sacred.

"By smoking together in the calumet the contracting parties intend to invoke the sun and the other gods as witnesses of the mutual obligations assumed by the parties, and as a guaranty the one to the other that they shall be fulfilled. This is accomplished by blowing the smoke toward the sky, the four world quarters, and the earth, with a suitable invocation.

"There were calumets for commerce and trade and for other social and political purposes; but the most important were those designed for war and those for peace and brotherhood. It was vitally necessary, however, that they should be distinguishable at once, lest through ignorance and inattention one should become the victim of treachery. The Indians in general chose not or dared not to violate openly the faith attested by the calumet, and sought to deceive an intended victim by the use of a false calumet of peace in an endeavor to make the victim in some measure responsible for the consequences. On one occasion a band of Sioux, seeking to destroy some Indians and their protectors, a French officer and his men, presented, in the guise of friendship, twelve calumets, apparently of peace; but the officer, who was versed in such matters and whose suspicion was aroused by the number offered, consulted an astute Indian attached to his force, who caused him to see that among the twelve one of the calumet shafts was not matted with hair like the others, and that on the shaft was graven the figure of a viper, coiled around it. The officer was made to understand that this was the sign of covert treachery, thus frustrating the intended Sioux plot."

The use of the calumet was almost universal in the Mississippi valley and among the Plains tribes, but in the Ohio and St. Lawrence valleys and southward its use is not so definitely shown. The symbolism and ritual of the calumet reached its highest development among the Pawnee and neighboring Siouan tribes and the concept probably originated in this region.

R. LINTON.

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1. PIPE MADE FROM WALRUS TUSK, ESKIMO. 2. WOODEN PIPE, HAIDA. 3. PIPE OF BLACK SLATE, HAIDA.

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